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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/422,792	10/22/1999	CHIORI MOCHIZUKI	35.G2482	6000
5514	7590	08/24/2004	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			YE, LIN	
30 ROCKEFELLER PLAZA			ART UNIT	
NEW YORK, NY 10112			PAPER NUMBER	

2615

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/422,792	Applicant(s) MOCHIZUKI, CHIORI	
	Examiner Lin Ye	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 July 2004.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-53 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-53 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 22 October 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

1. Applicant's amendments with respect to claims 1-53 filed on 7/2/2004 (RCE) have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 9, 15, 19, 31, 38 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Possin et al. U.S. Patent 5,430,298.

Referring to claim 1, the Possin reference discloses in Figures 1-2, an image pick-up apparatus (computed topography imager apparatus 100 for detection of x-ray, see Col. 3, lines 44-46) comprising a wavelength converter (Scintillator 110, see Col. 3, lines 42-44) for converting an incident radiation (x-ray radiation) to a light having a wavelength detectable by a photoelectric conversion element on a sensor substrate (photo sensor array block 130 includes a substrate 138, see Col. 3, lines 61-63 and Col. 4, lines 24-25) on which plural photoelectric conversion elements (a plurality of photosensor devices 124) and switching elements (switching elements 140, see Col. 6, lines 35-52) are disposed, wherein the wavelength converter (110) is deposited on a

flattening layer (optical coupling layer 170, see Col. 3, lines 65-67), and wherein the plural photoelectric conversion elements (124), the plural switching elements (140), and the flattening layer (170) are situated between the sensor substrate (138) and wavelength converter (110) as shown in Figure 1.

Referring to claim 2, the Possin reference discloses wherein the flattening layer (170) is obtained by flattening a protective layer provided on the sensor substrate (138 included in sensor array block 130) as shown in Figure 1.

Referring to claim 3, the Possin reference discloses wherein flattening layer (170) is provided on a protective layer (optical coupling layer) on the sensor substrate (138 included in sensor array block 130) as shown in Figure 1.

Referring to claim 9, the Possin reference discloses wherein the wavelength converter (scintillator 110) comprises a scintillator (See Col. 3, lines 42-45).

Referring to claim 15, the Possin reference discloses all subject matter as discussed with respected to same comment as with claim 1.

Referring to claim 19, the Possin reference discloses all subject matter as discussed with respected to same comment as with claim 9.

Referring to claim 31, the Possin reference discloses all subject matter as discussed with respected to same comment as with claims 1-3.

Referring to claim 38, the Possin reference discloses all subject matter as discussed with respected to same comment as with claims 1-3.

Referring to claim 45, the Possin reference discloses all subject matter as discussed with respected to same comment as with claim 1.

*Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-8, 12-14, 16-18, 22-30, 32-36, 39-43 and 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Possin et al. U.S. Patent 5,430,298 in view of Majewski et al. U.S. Patent 6,271,525.

Referring to claims 4 and 6, The Possin reference discloses all subject matter as discussed in respected claim 1, except the reference does not explicitly shows a second flattening layer is provided on the wavelength converter so the wavelength converter is flattened.

The Majewski reference discloses in Figures 1-4, an image pick-up apparatus comprising a wavelength converter (scintillator layer 12) for converting an incident radiation (gamma radiation); a flattening layer (bonding/protective layer 40, see Col. 3, lines 46-55) is provided on the wavelength converter (12). The Majewski reference is evidence that one of ordinary skill in the art at the time to see more advantages for an image pick-up apparatus comprising a flattening layer that is provided on the wavelength converter so that serving to cushion or protect the friable wavelength converter layer (12) from physical damage through shock (See Col. 3, lines 38-41). For that reason, it would have been obvious a second flattening layer is

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provided on the wavelength converter so the wavelength converter is flattened disclosed by Possin.

Referring to claim 5, the Majewski reference discloses wherein the second flattening layer (40) covers the end face of the wavelength converter as shown in Figure 1.

Referring to claim 7, the Majewski reference discloses wherein a light reflection film (a thin foil of aluminum layer 36) is provided on the second flattening layer (See Col. 3, lines 23-25).

Referring to claim 8, the Majewski reference discloses wherein a light reflection film (36) is provided on the flattened wavelength converter (12) as shown in Figure 1.

Referring to claim 12, the Majewski reference discloses wherein the light reflection film (a thin foil of aluminum layer 36) is made of an aluminum film.

Referring to claim 13, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 12.

Referring to claim 14, the Possin reference discloses having plural sensor substrates (a plurality of photosensor devices 124 disposed on the layer 138 included in the sensor array block 130 in Figure 1).

Referring to claim 16, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 4.

Referring to claim 17, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 5.

Referring to claim 18, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 7.

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Referring to claim 22, the Possin and Majewski references disclose all subject matter as discussed with respect to same comment as with claim 12.

Referring to claim 23, The Possin reference discloses all subject matter as discussed in respect claim 1, except the reference does not explicitly show a signal processing means for processing the signal from the image pick-up apparatus, and display means for displaying the signal from the signal processing means.

The Majewski reference discloses a signal processing means for processing the signal (digitizer 18 digitizes the output of array 16) from the image pick-up apparatus; and a display means for displaying the signal from the signal processing means as shown in Figure 4 (See Col. 2, lines 55-65). The Majewski reference is evidence that one of ordinary skill in the art at the time to see more advantages for the image pick-up system including a signal processor for processing the signal from the image pick-up apparatus and a display means for displaying the signal from the signal processing means so that user can review captured image from the display immediately. For that reason, it would have been obvious the image pick-up system including a signal processing means for processing the signal from the image pick-up apparatus and display means for displaying the signal from the signal processing means disclosed by Possin.

Referring to claim 24, the Majewski reference discloses a telecommunication means for transferring the signal from the signal processing means (See Col. 2, lines 64-65).



Referring to claim 25, the Majewski reference discloses a recording means for recording the signal from the signal processing means (computer 20 is for recoding the signal output from digitizer 18).

Referring to claim 26, the Majewski reference discloses a storage means for storing the signal from the signal processing means (computer 20 inherently has a storage means that recoding the signal output from digitizer 18 and transfer data to remote location).

Referring to claim 27, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 23.

Referring to claim 28, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 25.

Referring to claim 29, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 24.

Referring to claim 30, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 26.

Referring to claim 32, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 4.

Referring to claim 33, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 5.

Referring to claim 34, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 6.

Referring to claim 35, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 7.

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Referring to claim 36, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 8.

Referring to claim 39 the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 4.

Referring to claim 40, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 5.

Referring to claim 41, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 6.

Referring to claim 42, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 7.

Referring to claim 43, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 8.

Referring to claim 46, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 4.

Referring to claim 47, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 5.

Referring to claim 48, the Possin and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 7.

6. Claims 10-11, 20-21, 37, 44 and 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Possin et al. U.S. Patent 5,430,298 in view of Lubowski et al. U.S. Patent 4,011,454.

Referring to claims 10-11, the Possin reference discloses all subject matter as discussed in respected claims 1 and 9, except the reference does not explicitly shows a detail about the scintillator (110) comprises a columnar CsI columnar crystal.

The Lubowski reference discloses in Figures 1-3, an x-ray image intensifier comprising a structured scintillator screen produced by a vacuum evaporation process in which Cesium iodide (CsI) is evaporated from a source boat and deposited on a topographically structured surface to produce columnar scintillator elements (See Abstract section). The Lubowski reference is evidence that one of ordinary skill in the art at the time to see more advantages for the scintillator has a CsI columnar crystal so that to increase the proportion of light photons generated which leaves the upper surface when the column is thought of as extending up from the substrate (See Col. 2, lines 5-20). For that reason, it would have been obvious the scintillator (110) comprises a columnar CsI columnar crystal disclosed by Possin.

Referring to claims 20-21, the Possin and Lubowski references disclose all subject matter as discussed with respected to same comment as with claims 10-11.

Referring to claim 37, the Possin reference discloses all subject matter as discussed in respected claim 31, except the reference does not explicitly state forming the wavelength converter comprises a vacuum or vapor deposition step.

The Lubowski reference discloses in Figures 1-3, an x-ray image intensifier comprising a structured scintillator screen (wavelength converter) produced by a vacuum evaporation process in which Cesium iodide (CsI) is evaporated from a source boat and deposited on a topographically structured surface to produce columnar scintillator elements (See Abstract section). The Lubowski reference is

evidence that one of ordinary skill in the art at the time to see more advantages of providing a vacuum or vapor deposition step for forming the wavelength converter (x-ray or gamma detector) so that to offer high quantum efficiency down to the vacuum region, making them ideal for wavelength detection. For that reason, it would have been obvious the wavelength converter comprises a vacuum or vapor deposition step disclosed by Possin.

Referring to claim 44, the Possin and Lubowski references disclose all subject matter as discussed with respected to same comment as with claim 37.

Referring to claim 49, the Possin and Lubowski references disclose all subject matter as discussed with respected to same comment as with claim 37.

Referring to claims 50-51, the Possin and Lubowski references disclose all subject matter as discussed with respected to same comment as with claims 10-11.

7. Claims 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Possin et al. U.S. Patent 5,430,298 in view of Yamazaki et al. U.S. Patent 5,700,333.

Referring to claims 52-53, the Possin reference discloses all subject matter as discussed in respected claim 1, except the reference does not explicitly state the photoelectric conversion elements comprise no-single crystalline semiconductor material, such as amorphous silicon film, etc.

The Yamazaki reference discloses in Figure 1A, a thin-film photoelectric conversion device comprise non-single crystalline semiconductor material (see Col. 3, lines 30-35), such as a amorphous silicon film (103), a silicon oxide film (102) and glass substrate (101) as an underlying layer (See col. 4, lines 26-42). The Yamazaki

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reference is evidence that one of ordinary skill in the art at the time to see more advantages photoelectric conversion elements comprise non-single crystalline semiconductor so as forming an excellent photoelectric conversion characteristic. For that reason, it would have been obvious the photoelectric conversion elements comprise no-single crystalline semiconductor material, such as amorphous silicon film, etc., disclosed by Possin.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Lin Ye** whose telephone number is **(703) 305-3250**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on (703) 308-9644.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, DC 20231

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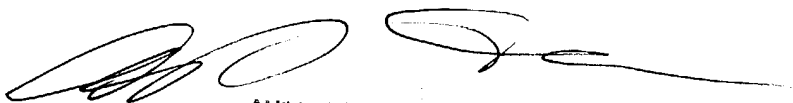
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

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Lin Ye

August 23, 2004



ANDREW CHRISTENSEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600